Question: What are the causes of abortion in cattle? What would cause cows to abort two months early?

Answer: There are many known causes of abortion but, unfortunately, the cause of abortion in approximately one half of all cases is unknown or remains undetermined in spite of our best diagnostic efforts. The loss of a fetus prior to the end of the normal gestation period in a beef herd is considered acceptable at a rate of 2-5%. Higher abortion rates may occur as a cluster or over time and in either case may warrant diagnostic pursuit. Pregnancy termination at less than 45 days is called early embryonic loss and usually goes undetected. Fetuses discharged after 260 days of gestation are considered premature deliveries and neonatal survival is quite high if special care is given. Many of the agents that cause abortion can also result in delivery of mummified fetuses, stillbirths, or very weak calves and may play a role in overall infertility.

Non infectious causes of abortion are among the most difficult to diagnose. Genetic defects including errors of fertilization and mutation resulting in chromosomal abnormalities usually produce embryonic loss in the early stages of pregnancy. Nutritional factors which may cause abortion include inadequate energy, excessive or insufficient protein and deficiencies of vitamin A, vitamin E, selenium, iodine, cobalt or phosphorous. Many toxins are incriminated as abortifacients such as the pine needle of the Ponderosa Pine in the west, nitrates, moldy sweet clovers, fescue molds, lupines, gossypol in cottonseeds, and industrial pollutants. Imbalances of endogenous hormones, specifically progesterone, estrogen, and cortisone have been implicated in bovine abortions. Physical trauma can cause abortions as well as stressors such as transport, systemic disease, high fevers or high ambient temperatures, anemia, allergic reactions, and twinning.

Infectious agents that cause abortion in cattle receive more attention and are more likely to be associated with an abortion “storm”. The most commonly diagnosed infectious diseases associated with abortion are IBR (Infectious Bovine Rhinotracheitis), BVD (Bovine Viral Diarrhea), Mycoses (molds), and Leptospirosis. BVD and IBR are ubiquitous cow viruses which negatively impact the respiratory system, the reproductive system, and in some cases, the digestive system. They are mostly spread by cow contact via expired particles or body secretions and are short lived in the environment. There are five common serovars of the bacteria Leptospirosis, all of which cause disease in the reproductive system and rarely cause clinical illness. These three infectious agents are incorporated into vaccine products most often recommended by veterinarians to prevent pneumonia, infertility, and abortion. Mycotic abortions are the result of ingestion or inhalation of molds by cattle from poorly preserved feeds. There is relatively little correlation between causative agent and stage of gestation at which abortion occurs. That said, the literature still reports that abortion at 6 to 9 months would make IBR, Leptospirosis, Mycoses, and Brucellosis suspect. Brucellosis is a bacterium often associated with abortion storms in the middle of the twentieth century in the U.S. Thanks to the persistent effort of the USDA; this disease is approaching eradication and has become very

well contained. It has not been a problem in the northeast for some twenty five years.

Many other bacteria are implicated as cause for abortion more often in sporadic or isolated cases. These infections gain access to the fetus and placenta via the blood stream or through a compromised cervical barrier. While they primarily cause clinical disease associated with other organ systems, they can also cause fetal death. They include A. pyogenes, pasteurella (mannheimia), listeria, salmonella, E coli, hemophilus, and staphylococcus.

Campylobacter (vibrio) is a bacteria and Trichomonas is a protozoan that are classified as venereal disease agents. They cause low grade infections of the vagina of cows and are harbored and transmitted from the prepuce and penis of breeding bulls. While most commonly associated with infertility, temporary uterus infection, and repeat breeders, these agents can cause abortion usually at 2-5 months of gestation. Ureaplasma and Mycoplasma are bacteria that also cause low grade reproductive tract infections, commonly cause infertility, and less often are implicated in abortion cases.

Neospora is a protozoan agent transmitted by dogs that has become a serious problem with abortions in the western states. As with the protozoa Sarcocystis and the bacteria C hlamydia, they are not often found in the northeast.

The diagnosis of abortion requires significant effort from both your veterinarian and the diagnostic laboratory. Two blood samples taken from the dam at least two weeks apart can offer limited information about the likelihood of common infectious causes of abortion. A definitive diagnosis and thorough investigation requires the submission of multiple fetal tissue samples, both chilled and preserved in formalin, placenta, and blood. A successful outcome directly correlates with how fresh and clean the fetus and placenta are when your veterinarian collects these samples. They should be gathered directly from the cow if possible. When found in the environment, they should be rinsed with water to remove gross debris and in both cases bagged and refrigerated until samples can be taken. It is best if these samples are received by the lab within 24 hours. Results may be discouraging and tissues from more than one abortion case may need to be submitted.

If you are having abortion problems, re-evaluate your vaccination program with your veterinarian and investigate other clinical evidence that might elucidate the cause. What is the quality of your feed? Have pneumonia or diarrhea been recognized in the herd? Do you see abnormal vaginal discharge in your cows? Is the bull proven? Have the cows suffered any undue stress of late? Is there close contact with the wildlife population? What is the source of drinking water? Have new cattle been introduced into the herd? Do you know the history of the herd of origin? Diagnostic tests for individual diseases and feed analysis may also be warranted, based on herd history, to help identify the cause of abortion on your farm.